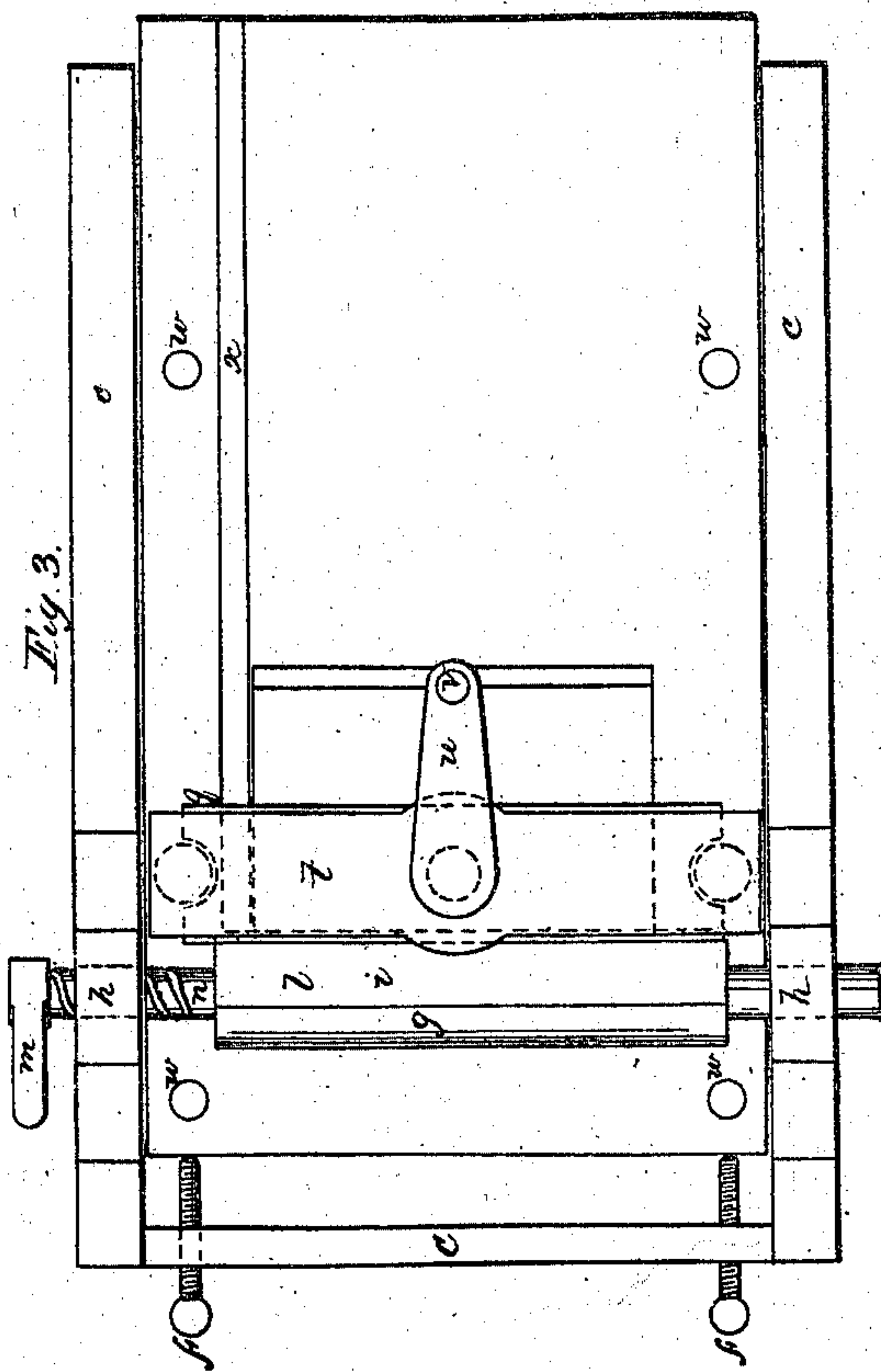
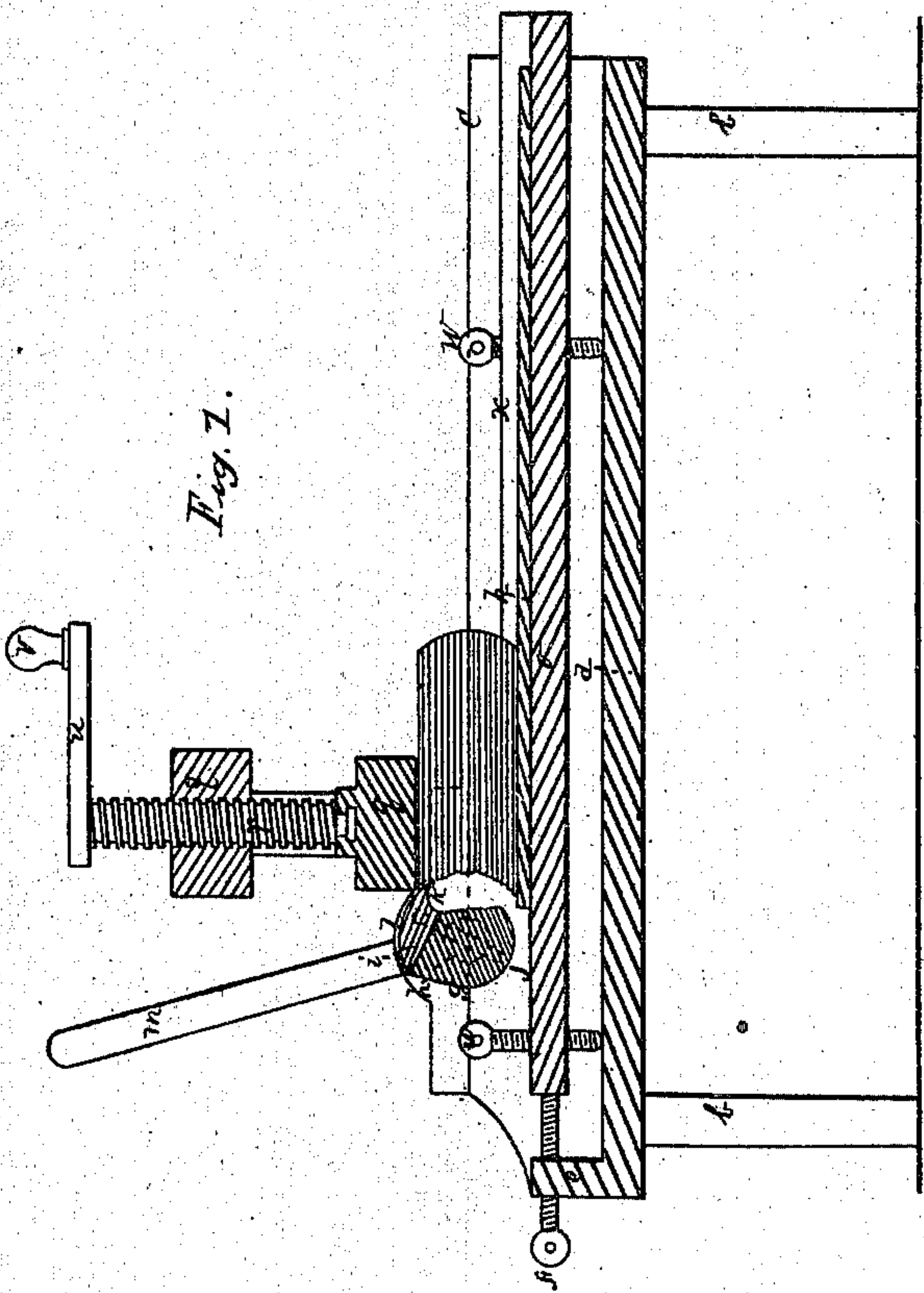
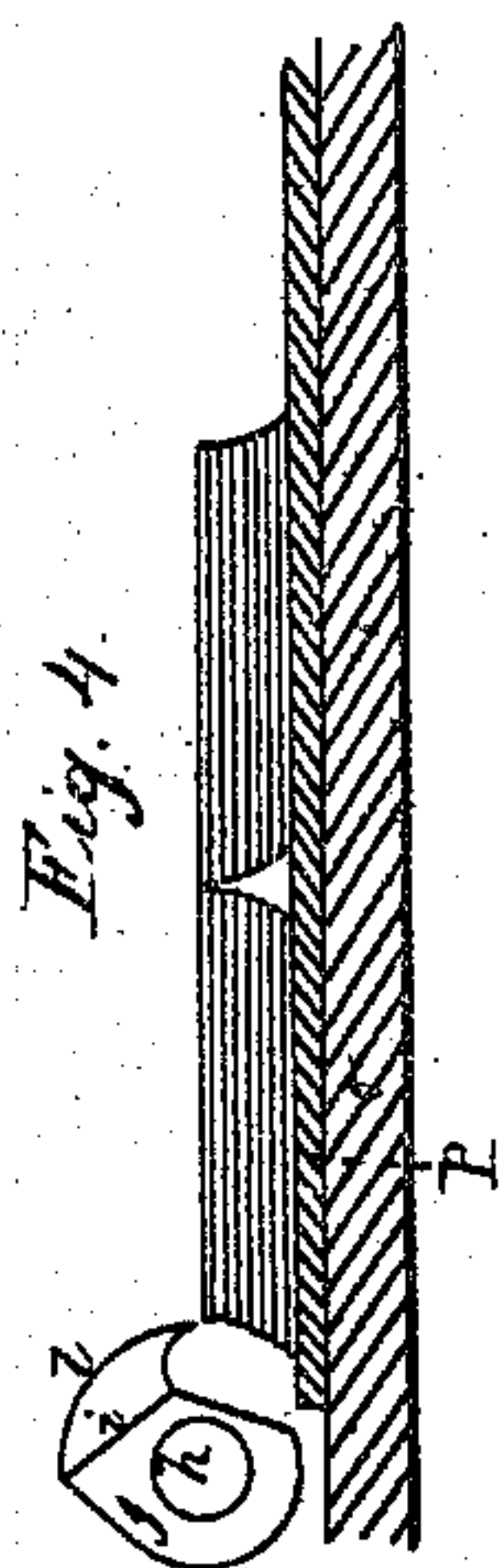
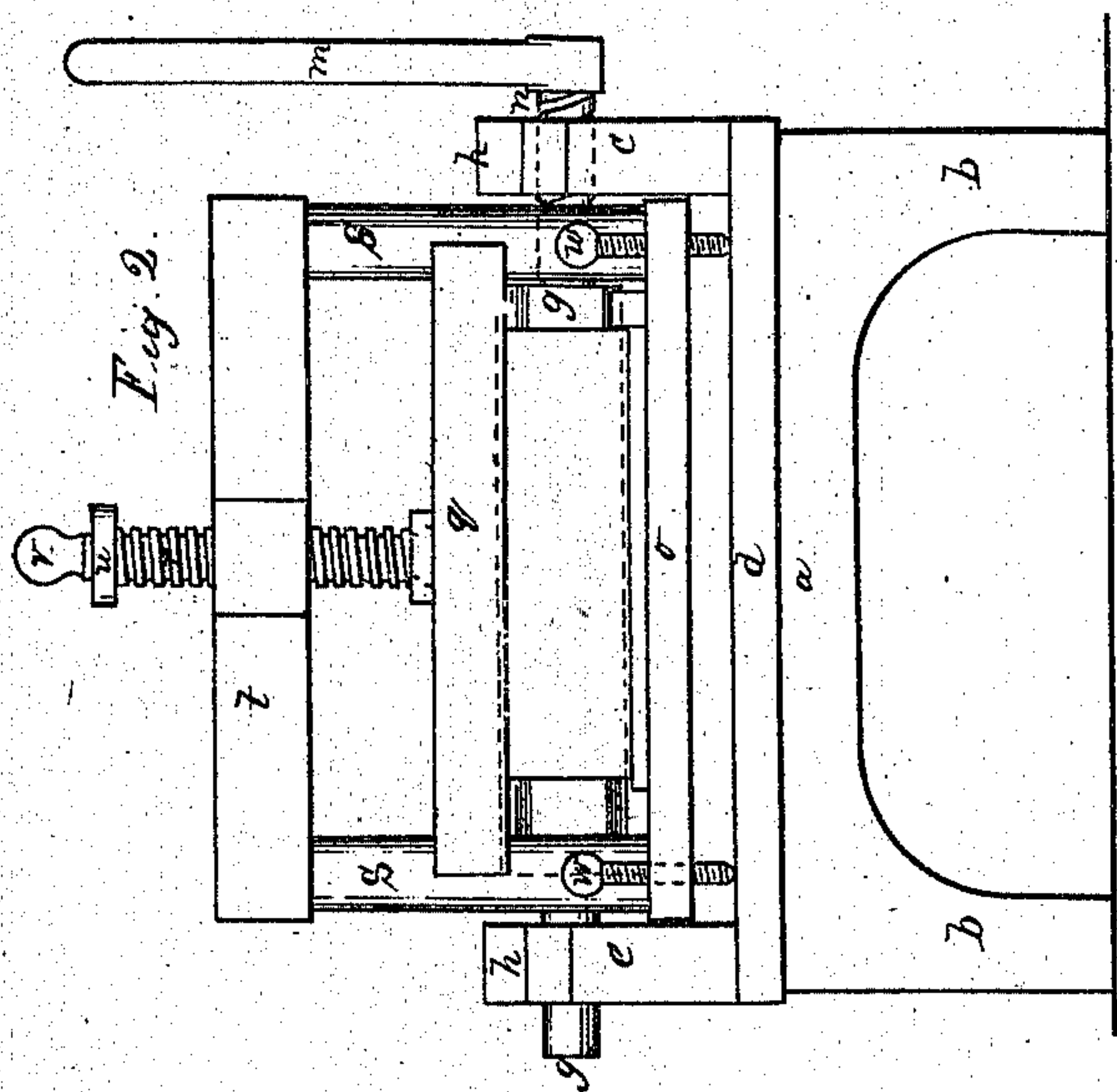


G. Trinks & L. Heitkamp.
Mach. for Cutting Books in the Round.
N^o 35639. Patented Jun. 17. 1862.



Witnesses.
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UNITED STATES PATENT OFFICE.

GREGOR TRINKS, OF NEW YORK, AND LOUIS HEITKAMP, OF BROOKLYN,
NEW YORK.

MACHINE FOR CUTTING BOOKS IN THE ROUND.

Specification forming part of Letters Patent No. 35,639, dated June 17, 1862.

To all whom it may concern:

Be it known that we, GREGOR TRINKS, of the city and county of New York, in the State of New York, and LOUIS HEITKAMP, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Machine for Cutting the Fronts of Books in the Round; and we hereby declare that the following is a full and correct description thereof, reference being had to the drawings annexed, making a part of this specification, and to the letters of reference thereon.

The operation of cutting the fronts of books in the "round," as it is termed by bookbinders, has heretofore been performed by hand-tools.

Our said invention consists, chiefly, in combining together in an organized machine a press suitable for holding a book and presenting the front edge of the same to be cut and finished with a rocking knife, or knife turning on its axis, the cutting-edge and polishing-surface of which produces the finished concave or round of the front of the book.

In order to make a smooth cut, we give the rocking knife an endwise motion by any suitable mechanical device, so that it cuts with a drawing cut.

The back of the knife is smoothly finished and polished and the surface made to conform to the concave of the front edge of the book, so that as it follows the track of the knife-edge it not only prevents the knife-edge from feeding into the book, but by the pressure and motion against the front edges of the leaves smoothes and polishes them in the round, thus preparing them in a highly-finished state for gilding.

The knives may be made of different radius from the axis to the cutting-edge for different-sized books, or for different degrees of curvature in the round of books of any particular size. The round may be cut in each book at one operation, or, by dividing the book, one-half of the round can be cut and polished at a time by a single stroke of the knife. This mode of operation gives opportunity to vary the curve of the round with any given cutter from a true arc of a circle to a combination of two arcs of a circle by raising or lowering the back or front of the press-bed, so as to vary it

from a horizontal plane or a plane at right angles from the vertical plane of the axis of the cutting-knife. We prefer this mode of operation for varying the curve of the round to any way of varying it by giving the edge of the knife an eccentric motion from its axis, as the latter would interfere with the polishing capacity of the back of the knife. The edge of the knife is sharpened from the under side, so that the polishing-surface of the curved blade and back of the knife follows in the track of the cut. The edge of the knife, after having passed through the leaves of the book in cutting the round, comes against a cutting-board placed on the press-bed under the book and projecting a little in front of the book, for the knife to cut on in order to make a clean cut of the last leaf.

More particularly to describe our said invention, we refer to the annexed drawings, of which—

Figure 1 is a vertical longitudinal section of the machine, showing the position of the book, knife, and press; Fig. 2, a rear elevation of the machine; Fig. 3, a plan view; Fig. 4, a detached section of part of the press-bed, cutting-board, knife, and knife-stock, with book opened in the middle for the purpose of cutting half of the round at each stroke of the knife.

Letter *a* represents the frame of the main body of the machine mounted on legs *b*. At the sides of the frame are two sides or flanges, *c c*, parallel with each other, and inclosing a horizontal bed, *d*. At the front end of the machine a flange, *e*, is turned up from the bed *d*, in which are placed the two gage-screws *f*, which regulate the position of the book-press and book relatively to the knife-edge when brought up to the knife to be cut.

Letter *g* is a horizontal knife-stock, which turns freely in bearings *h h* in the side flanges, *c c*, of the main bed of the machine, the bearings being carefully and accurately placed, so that the axis of the knife-stock shall be at right angles with the inside opposite surfaces of the flanges *c c*, and the horizontal plane of the axis parallel with the top side of the main bed *d*.

Letter *i* represents a cutting-knife secured to the cutter-stock by screws *j*. The knife is sharpened from the under side, *k*. The outer

surface, *l*, of the knife-blade is convex, being a section of the periphery of a cylinder and concentric with the axis of the knife. This convex surface is highly polished, for the purpose of smoothing or polishing the front edge of the book in the round as it follows the knife-edge and is drawn back to its starting-point.

Letter *m* is a hand-lever fast to the knife-stock, by which it is operated. The knife-stock has an endwise motion as well as a rocking motion, the endwise motion being communicated by a screw, *n*, cut in the shaft and bearing of the cutter-stock next to the hand-lever.

For convenience the book-press is made movable in a direction toward and from the cutter-stock.

Letter *o* represents the bed of the book-press; *p*, the cutting-board; *q*, the platen; *r*, screw; *s s*, posts; *t*, cross-head; *u*, lever, and *v* handle to lever for turning the screw.

Letters *w w w w* are adjusting-screws placed in the press-bed for the purpose of regulating the level of the bed and the position of the middle of the book, which latter should be in the horizontal plane of the axis of the cutting-knife. The adjusting-screws may project upward from the lower bed, or they may be dispensed with and packing substituted.

In the operation of the machine the book should be placed in the press, substantially as shown in Fig. 1, so as to be clamped as close to the front edge as practicable to admit of working the knife. The cutting-board should project beyond the edge of the book.

There is a guide, *x*, on the press-bed, against which one end of the book is placed, so as to insure the round being cut at right angles with the ends of the book. The side flanges, *c c*, of the main bed serve as guides for the backward and forward motion of the press-bed, the side edges of the press-bed being planed up to fit the inside opposite parallel sides of the flanges *c c*.

The book-press having been drawn back from the knife and the book properly clamped therein, is pushed forward toward the knife-stock (the cutting-edge of the knife being thrown back out of the way) until the front edge of the press-bed comes against the gage-screws *f f*, which arrest the further progress of the bed and determine the point of action of the knife-edge upon the book. The book being thus placed in a proper position the knife is brought against it, and the operation of cutting and polishing the book in the round is performed by the combined rocking and endwise motion of the knife-edge, and the polishing-surface combined therewith.

Now, it is evident that the cutting and polishing may be performed at two different operations by separating the polishing-surface from the combination with the cutting-edge, which we have described and shown herein,

and which we prefer to use, and placing the polishing-surface upon a separate stock to be used in the machine after the operation of cutting.

We are aware that cutters fast to a horizontal rotating stock and cutting with a drawing cut have been used for various purposes, in combination with clamps or presses for holding the material acted on by the cutter—such as tobacco-cutting machines, planing-machines, &c.; but in those cases the material was fed regularly up to the knife, to be cut away by constantly-repeated strokes of the knife during continuous rotation; but, nevertheless, we do not claim any combination of cutting-knife moving in a curve with any press for holding and presenting material to the action of the knife, except the knife and press be constructed and organized so as to work together, substantially as we have described, for the purpose of cutting the fronts of books in the round.

We claim as our invention—

1. A machine for cutting the fronts of books in the round, consisting of a rocking knife suitable for cutting the round or concave of the front edge of the book, in combination with a press suitable for holding the book and presenting it to the action of the knife, substantially as described.

2. In combination with a press suitable for holding the book, a convex polishing device, substantially as described, for the purpose of polishing the fronts of books in the round, as set forth.

3. In combination with a press suitable for holding a book and presenting the front edge to be cut, a knife-edge moving in the desired curve of the round, having combined with it a polishing-surface, substantially as described.

4. In combination with a press suitable for holding and presenting the front edge of the book to be cut, the endwise motion of the knife and polishing device, whether combined together or separate from each other, as described, when constructed and arranged to move in the curve necessary to cut and finish the front of the book in the round, substantially as described.

5. In combination with a press suitable for holding the book, a knife the cutting-edge of which travels in the desired curve of the round, substantially as described.

6. In combination with a press suitable for holding a book and presenting it to be cut, and a knife having a cutting-edge moving in the desired curve of the round, a cutting-board or other suitable surface for the knife to cut against, substantially as described.

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